

REMARKS

The present application was filed on January 17, 2002 with claims 1 through 22. Claims 1 through 22 are presently pending in the above-identified patent application.

In the Office Action, the Examiner rejected claims 8-12, 16-18, and 20 under 35 U.S.C. §102(e) as being anticipated by Huai et al. (United States Patent Number 6,928,484), and rejected claims 1-7, 13-14, and 21-22 under 35 U.S.C. §103(a) as being unpatentable over Huai et al. in view of Hsu (United States Patent Number 6,363,319). The Examiner indicated that claims 15 and 19 would be allowable if rewritten in independent form including all of the limitations of the base claims and any intervening claims.

Independent Claims 1, 8, 21 and 22

Independent claim 8 was rejected under 35 U.S.C. §102(e) as being anticipated by Huai et al., and claims 1, 21, and 22 were rejected under 35 U.S.C. §103(a) as being unpatentable over Huai et al. in view of Hsu. Regarding claim 1, the Examiner asserts that Huai teaches routing a demand for one of the commodities on a set of paths having a minimum cost, the set of paths comprising at least one primary path and at least one secondary path, wherein demand will be routed from a primary path to a secondary path during a failure (col. 2, lines 9-32); iterating the steps of routing, adjusting, and performing until an objective value is minimized, whereby flow for each of the links in the network is determined (col. 3, lines 45-62, and col. 5, line 11, to col. 8, line 55); and performing the step of adjusting for each of a number of potential failures (Abstract; col. 1, line 18, to col. 8, line 55). The Examiner acknowledges that Huai fails to teach adjusting the minimum total cost through an exponential function based on an amount of flow through links over which the demand is routed, but asserts that Hsu teaches this limitation (col. 13, lines 33-43).

Applicants note that Huai is directed to the problem of constructing node-disjoint paths while computing the shortest path tree during the standard Dijkstra computation (see, Abstract; col. 4, lines 15-49). Applicants also note that Hsu considers the problem of accommodating a source-destination flow in an existing network with capacities. Hsu considers link capacities and demand size, and uses a heuristic that uses "bias costs" and an exponential function.

The present disclosure is directed to network routing based on demands; the present disclosure teaches that “each demand is a requested amount of capacity to be carried on the network.

Demands are created between a source device and a destination device.” (Page 4, lines 7-8.)

Applicants could find **no** disclosure or suggestion by Huai or Hsu of *demands, flows, or “amounts of flow.”* Furthermore, neither Huai nor Hsu disclose or suggest a *plurality of flows* or a *plurality of commodities*. In addition, although Huai teaches to update costs for *paths*, Huai and Hsu do **not** disclose or suggest *updating costs for links* or *updating until a value of a function is at least as much as a predetermined value*.

Applicants could also find no disclosure or suggestion by either Huai or Hsu to combine the exponential function disclosed by Hsu and the method disclosed by Huai. Independent claims 1 and 22 require routing a ***demand for one of the commodities*** on a set of paths having a minimum cost, the set of paths comprising at least one primary path and at least one secondary path, wherein *demand* will be routed from a primary path to a secondary path during a failure; adjusting the minimum total cost through an ***exponential function based on an amount of flow*** through links over which the demand is routed; performing the step of adjusting for each of a number of potential failures; and iterating the steps of routing, adjusting, and performing until an objective value is minimized, ***whereby flow for each of the links in the network is determined***. Independent claim 8 requires setting costs for each link in the network; initializing primary and second flows for each link to at least one predetermined value; ***selecting a commodity, each commodity*** comprising a source-sink pair and having a ***demand***; routing a *demand* through the network for the selected commodity; ***updating costs for links*** over which the *demand* is routed; and performing the steps of selecting, routing, and ***updating until a value of a function is at least as much as a predetermined value***.

Thus, Huai et al. and Hsu, alone or in combination, do not disclose or suggest routing a demand for one of the commodities on a set of paths having a minimum cost, the set of paths comprising at least one primary path and at least one secondary path, wherein demand will be routed from a primary path to a secondary path during a failure; adjusting the minimum total cost through an exponential function based on an amount of flow through links over which the demand is routed; performing the step of adjusting for each of a number of potential failures; and iterating the steps of

routing, adjusting, and performing until an objective value is minimized, whereby flow for each of the links in the network is determined, as required by independent claims 1 and 22, and do not disclose or suggest setting costs for each link in the network; initializing primary and second flows for each link to at least one predetermined value; selecting a commodity, each commodity comprising a source-sink pair and having a demand; routing a demand through the network for the selected commodity; updating costs for links over which the demand is routed; and performing the steps of selecting, routing, and updating until a value of a function is at least as much as a predetermined value, as required by independent claim 8.

Dependent Claims 2-7 and 9-20

Dependent claims 9-12, 16-18, and 20 were rejected under 35 U.S.C. §102(e) as being anticipated by Huai et al., and claims 2-7 and 13-14 were rejected under 35 U.S.C. §103(a) as being unpatentable over Huai et al. in view of Hsu.

Claims 2-7 and 9-20 are dependent on claims 1 and 8, respectively, and are therefore patentably distinguished over Huai et al. and Hsu (alone or in any combination) because of their dependency from independent claims 1 and 8 for the reasons set forth above, as well as other elements these claims add in combination to their base claim.

If any outstanding issues remain, or if the Examiner has any further suggestions for expediting allowance of this application, the Examiner is invited to contact the undersigned at the telephone number indicated below.

The Examiner's attention to this matter is appreciated.

Respectfully submitted,



Date: January 17, 2006

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